

App. No. 09/940,757
Amtd. Dated 13 December 2004
Reply to Office action of 20 October 2004

AMENDMENTS TO THE CLAIMS

Please substitute the following claims for the respective claims previously existing in this application.

1. (Currently Amended) A method of forming a vacuum microelectronic device comprising:

forming at least one electron emitter on a substrate;
applying a conditioning electric field having a value of at least 0.2 to 50 volts per micrometer to move a portion of the at least one electron emitter in a direction toward the conditioning electric field, wherein the conditioning electric field maintains ~~is of a sufficient strength to maintain~~ the at least one electron emitter in the direction of the conditioning electric field after removing the conditioning electric field; and

extracting a current from the at least one electron emitter wherein the at least one electron emitter has an internal current density of at least 1×10^4 amperes per square centimeter.

2. (Cancelled).

3. (Previously presented) The method of claim 1 further including subsequently operating the at least one electron emitter using an operating electric field having a value that is less than the value of the conditioning electric field.

4. (Previously presented) The method of claim 3 wherein using the operating electric field includes using the operating electric field having a value that is less than ninety percent of the value of the conditioning electric field.

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5. (Previously presented) The method of claim 1 wherein applying the conditioning electric field includes using a sequence of alternately applying and removing the conditioning electric field.

6. (Original) The method of claim 1 wherein forming at least one electron emitter on a substrate includes forming at least one nanotube emitter on the substrate.

Claims 7-20 (Canceled).

21. (New) The method of claim 1 further including:
forming an anode overlying the at least one electron emitter wherein applying the conditioning electric field includes applying the conditioning electric field between the at least one electron emitter and the anode; and
forming a gate electrode proximal to and displaced from the substrate.

22. (New) The method of claim 21 further including floating the gate electrode to a potential determined by the conditioning electric field while applying the conditioning electric field.